OWL ENGINEERING, INC.
CONSULTING COMMUNICATIONS ENGINEERS
1306 W. County Road F, St. Paul, MN 55112
(612) 631-1338 • Fax (612) 631-3502

ENGINEERING EXHIBIT FOR
APPLICATION FOR FM CONSTRUCTION PERMIT
SAMPLE BROADCASTING COMPANY
ELDON, IOWA

[redacted]

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ENGINEERING EXHIBIT FOR APPLICATION FOR FM CONSTRUCTION PERMIT SAMPLE BROADCASTING COMPANY ELDON, IOWA

CHANNEL 282 25 KW 100 METERS

ENVIRONMENTAL CONSIDERATIONS CONTINUED

The power density at the base of the tower was calculated using the following formula from OST Bulletin Number 65, October, 1985:

$$S = \frac{(0.64)(1.64)(ERP)(1000)(\text{milliwatts/watt})}{(pi(R)^2)}$$

where: S = power density in milliwatts per square centimeter
ERP = effective radiated power in watts
R = distance to radiation source in centimeters
pi = 3.146

Using this formula and the values shown below, a power density of 0.26 mW/cm^2 is found to exist at the base of the tower.

ERP = 50,000 watts
R = 8,100 cm.

The ANSI limit is 1.0 mW/cm^2. It is evident that any person at the base of the tower would be well within the ANSI exposure limit. Manipulating the above referenced formula, the minimum distance from the antenna required to achieve ANSI guidelines would be 41 meters.

Access to RF circuitry will be restricted. Signs will be posted warning of the potential danger. When persons require access to the tower for maintenance purposes, the transmitter power will be reduced or completely eliminated to comply with ANSI guidelines. Hence, the conditions of Section 1.1306(b)(3) would not be involved.

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CHANNEL 282 25 KW 100 METERS

CONCLUSIONS

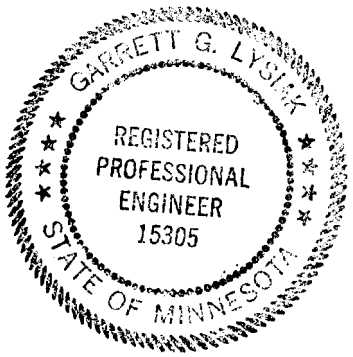
Based on the engineering studies provided, the following conclusions can be obtained:

(1) Implementation of the instant proposal will provide ELDON with a full time aural broadcast service.

(2) 65,688 persons in 4,745 square kilometers would have an available signal strength of 60 dBu or greater from the proposed construction location.

(3) All of ELDON would be served with a signal of 70 dBu or greater from the proposed construction site.

(4) The proposal is in complete conformance with all technical rules of the Federal Communications Commission.



Garrett G. Lysiak, P.E.

September 19, 1991

Section V-B - FM BROADCAST ENGINEERING DATA	FOR COMMISSION USE ONLY File No. _____ ASB Referral Date _____ Referred by _____

Name of Applicant

SAMPLE BROADCASTING COMPANY, L. P.

Call letters *(If issued)*	Is this application being filed in response to a window? [X] Yes [ ] No If Yes specify closing date: 10/10/91

4. Does the application propose to correct previous site coordinates? ☐ Yes ☒ No
If Yes, list old coordinates.

Latitude ° ' "	Longitude ° ' "

5. Has the FAA been notified of the proposed construction? ☒ Yes ☐ No
If Yes, give date and office where notice was filed and attach as an Exhibit a copy of FAA determination, if available.

Exhibit No. E-1

Date September 19, 199 Office where filed Central Regional Office

6. List all landing areas within 8 km of antenna site. Specify distance and bearing from structure to nearest point of the nearest runway.

	Landing Area	Distance (km)	Bearing (degrees True)
(a)	N/A		
(b)			

7. (a) Elevation: *(to the nearest meter)*

(1) of site above mean sea level: 237.7 meters

(2) of the top of supporting structure above ground (including antenna, all other appurtenances, and lighting, if any); and 90 meters

(3) of the top of supporting structure above mean sea level [(a)(1) + (a)(2)] 327.7 meters

(b) Height of radiation center: *(to the nearest meter)* H = Horizontal; V = Vertical

(1) above ground 81 meters (H)

81 meters (V)

(2) above mean sea level [(a)(1) + (b)(1)] 319 meters (H)

319 meters (V)

(3) above average terrain 100 meters (H)

100 meters (V)

8. Attach as an Exhibit sketch(es) of the supporting structure, labelling all elevations required in Question 7 above, except item 7(b)(3). If mounted on an AM directional-array element, specify heights and orientations of all array towers, as well as location of FM radiator.

Exhibit No. E-2

9. Effective Radiated Power:
(a) ERP in the horizontal plane 25 kw (H*) 25 kw (V*)

(b) Is beam tilt proposed? ☐ Yes ☒ No

If Yes, specify maximum ERP in the plane of the tilted beam, and attach as an Exhibit a vertical elevational plot of radiated field. -- kw (H*) -- kw (V*)

Exhibit No. N/A

*Polarization

SECTION V-B – FM BROADCAST ENGINEERING DATA (Page 3)

10. Is a directional antenna proposed? ☐ Yes ☒ No

If Yes, attach as an Exhibit a statement with all data specified in 47 C.F.R. Section 73.316, including plot(s) and tabulations of the relative field. Exhibit No. N/A

11. Will the proposed facility satisfy the requirements of 47 C.F.R. Sections 73.315(a) and (b)? ☒ Yes ☐ No

If No, attach as an Exhibit a request for waiver and justification therefor, including amounts and percentages of population and area that will not receive 6.16 mV/m service. Exhibit No. N/A

12. Will the main studio be within the protected 6.16 mV/m field strength contour of this proposal? ☒ Yes ☐ No

If No, attach as an Exhibit justification pursuant to 47 C.F.R. Section 73.1125. Exhibit No. N/A

13. (a) Does the proposed facility satisfy the requirements of 47 C.F.R. Section 73.207? ☒ Yes ☐ No

(b) If the answer to (a) is No, does 47 C.F.R. Section 73.213 apply? ☐ Yes ☐ No

(c) If the answer to (b) is Yes, attach as an Exhibit a justification, including a summary of previous waivers. Exhibit No. N/A

(d) If the answer to (a) is No and the answer to (b) is No, attach as an Exhibit a statement describing the short spacing(s) and how it or they arose. Exhibit No. N/A

(e) If authorization pursuant to 47 C.F.R. Section 73.215 is requested, attach as an Exhibit a complete engineering study to establish the lack of prohibited overlap of contours involving affected stations. The engineering study must include the following: Exhibit No. N/A

(1) Protected and interfering contours, in all directions (360°), for the proposed operation.
(2) Protected and interfering contours, over pertinent arcs, of all short-spaced assignments, applications and allotments, including a plot showing each transmitter location, with identifying call letters or file numbers, and indication of whether facility is operating or proposed. For vacant allotments, use the reference coordinates as the transmitter location.
(3) When necessary to show more detail, an additional allocation study utilizing a map with a larger scale to clearly show prohibited overlap will not occur.
(4) A scale of kilometers and properly labeled longitude and latitude lines, shown across the entire exhibit(s). Sufficient lines should be shown so that the location of the sites may be verified.
(5) The official title(s) of the map(s) used in the exhibits(s).

14. Are there: (a) within 60 meters of the proposed antenna, any proposed or authorized FM or TV transmitters, or any nonbroadcast *(except citizens band or amateur)* radio stations; or (b) within the blanketing contour, any established commercial or government receiving stations, cable head-end facilities, or populated areas; or (c) within ten (10) kilometers of the proposed antenna, any proposed or authorized FM or TV transmitters which may produce receiver-induced intermodulation interference? ☒ Yes ☐ No

If Yes, attach as an Exhibit a description of any expected, undesired effects of operations and remedial steps to be pursued if necessary, and a statement accepting full responsibility for the elimination of any objectionable interference (including that caused by receiver-induced or other types of modulation) to facilities in existence or authorized or to radio receivers in use prior to grant of this application. *(See 47 C.F.R. Sections 73.315(b), 73.316(e) and 73.318.)* Exhibit No. E-3

15. Attach as an Exhibit a 7.5 minute series U.S. Geological Survey topographic quadrangle map that shows clearly, legibly, and accurately, the location of the proposed transmitting antenna. This map must comply with the requirements set forth in Instruction V. The map must further clearly and legibly display the original printed contour lines and data as well as latitude and longitude markings, and must bear a scale of distance in kilometers.

Exhibit No. E-4

16. Attach as an Exhibit *(name the source)* a map which shows clearly, legibly, and accurately, and with the original printed latitude and longitude markings and a scale of distance in kilometers:

Exhibit No. E-5

STATE OF IOWA, STATE OF MISSOURI MAPS, SCALE 1:1,000,000

SECTION V-B - FM BROADCAST ENGINEERING DATA (Page 5)

Radial bearing (degrees True)	Height of radiation center above average elevation of radial from 8 to 16 km (meters)	Predicted Distances	
		To the 8.16 mV/m contour (kilometers)	To the 1 mV/m contour (kilometers)
*	120	25.4	41.9
0	100	23.4	39.2
45	98	23.1	38.8
90	119	25.3	41.7
135	124	25.8	42.4
180	83	21.3	36.1
225	79	20.8	35.3
270	77	20.5	34.9
315	119	25.3	41.8

*Radial through principal community, if not one of the major radials. This radial should NOT be included in the calculation of HAAT.

*317.1°

20. Environmental Statement *(See 47 C.F.R. Section 1.1301 et seq.)*

Would a Commission grant of this application come within Section 1.1307 of the FCC Rules, such that it may have a significant environmental impact? ☐ Yes ☒ No

If you answer Yes, submit as an Exhibit an Environmental Assessment required by Section 1.1311. Exhibit No. E-6

If No, explain briefly why not.

Please See Engineering Statement

CERTIFICATION

I certify that I have prepared this Section of this application on behalf of the applicant, and that after such preparation, I have examined the foregoing and found it to be accurate and true to the best of my knowledge and belief.

Name *(Typed or Printed)*	Relationship to Applicant *(e.g., Consulting Engineer)*
Garrett G. Lysiak	Registered Professional Engineer
Signature: Garrett G. Lysiak	Address *(Include ZIP Code)* Owl Engineering, Inc. 1306 W County Road F, Ste. 105 Arden Hills, MN 55112
Date: September 19, 1991	Telephone No. *(Include Area Code)* (612) 631-1338

☆U.S. GOVERNMENT PRINTING OFFICE: 1987—761-910

ENGINEERING EXHIBIT E-1

DO NOT REMOVE CARBONS

Form Approved OMB No. 2120-0001

US Department of Transportation
Federal Aviation Administration

NOTICE OF PROPOSED CONSTRUCTION OR ALTERATION

Aeronautical Study Number

1. Nature of Proposal

A. Type	B. Class	C. Work Schedule Dates
☒ New Construction	☒ Permanent	Beginning As per FCC
☐ Alteration	☐ Temporary (Duration _____ months)	End approval

3A. Name and address of individual, company, corporation, etc. proposing the construction or alteration. *(Number, Street, City, State and Zip Code)*

(515) 682-3282
area code Telephone Number

Sample Broadcasting Company
407 North Court, #1
Ottumwa, IA 52501

B. Name, address and telephone number of proponent's representative if different than 3 above.

Garrett G. Lysiak
Owl Engineering, Inc.
1306 W. County Road F, Ste. 105
Arden Hills, MN 55112 (612)631-1338

2. Complete Description of Structure

A. Include effective radiated power and assigned frequency of all existing, proposed or modified AM, FM, or TV broadcast stations utilizing this structure.

B. Include size and configuration of power transmission lines and their supporting towers in the vicinity of FAA facilities and public airports.

C. Include information showing site orientation, dimensions, and construction materials of the proposed structure.

A) 25 KW (H&V) 104.3 MHz
B) Does not apply.
C) Uniform cross section steel guyed tower with a side mounted FM antenna.

(If more space is required, continue on a separate sheet.)

4. Location of Structure

A. Coordinates *(To nearest second)*	B. Nearest City or Town, and State	C. Name of nearest airport, heliport, flightpark, or seaplane base
	Leando, IA	6K9

5. Height and Elevation *(Complete to the nearest foot)*

A. Elevation of site above mean sea level	
	780

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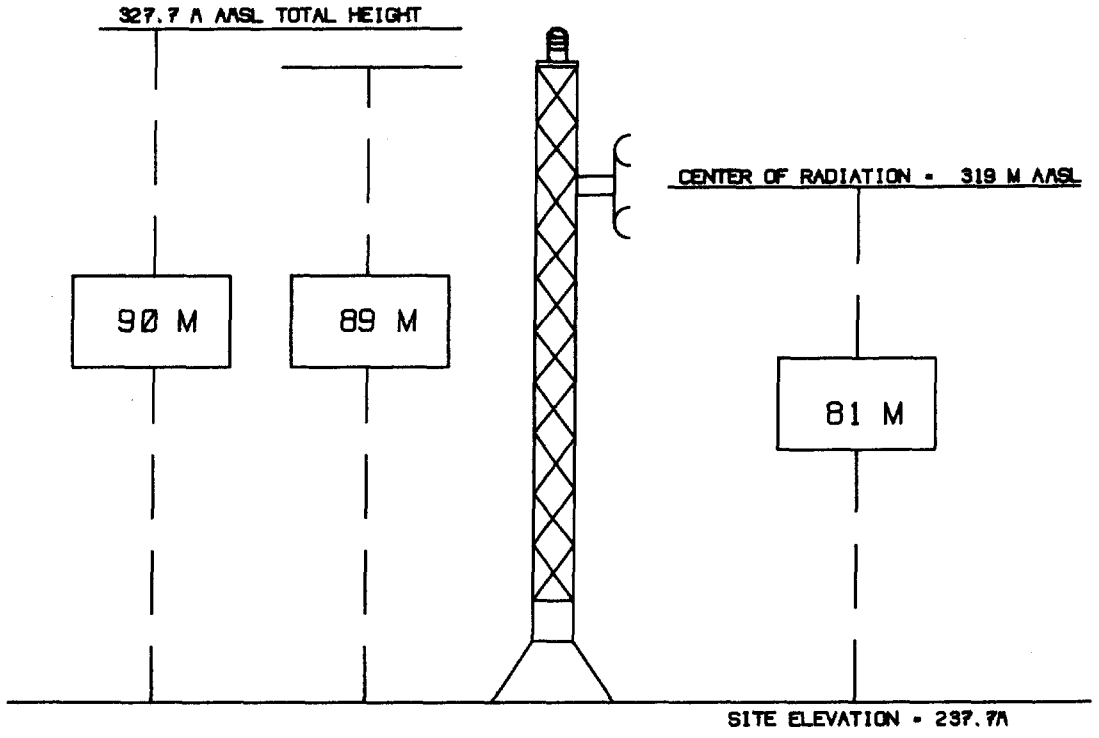

OWL ENGINEERING, INC.
ENGINEERING EXHIBIT E-2

ELDON, IA

CHANNEL 282C3

NOT TO SCALE

OWL ENGINEERING, INC.
CONSULTING COMMUNICATIONS ENGINEERS
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ENGINEERING EXHIBIT E-3
APPLICATION FOR FM CONSTRUCTION PERMIT
SAMPLE BROADCASTING COMPANY
ELDON, IOWA

CHANNEL 282 25 KW 100 METERS

PROPOSED TRANSMITTER AND STUDIO LOCATIONS

Sample proposes to operate from a site uniquely described by the geographic coordinates:

40° 48' 34" North Latitude

92° 05' 18" West Longitude

Figure E-4 is a portion of the Douds, Iowa 7.5 minute U.S.G.S. topographic quadrangle map showing the proposed transmitter site. No FM or TV transmitters are located within 60 meters of the proposed antenna location. Since there are no other FM or TV facilities located nearby there is not expected to be any receiver induced intermodulation interference or other objectionable interference.

Because the area is Rural, there is not expected to be any problem with blanketing interference. The applicant is aware of the provisions of Section 73.318 of the FCC's Rules and the requirement for satisfying all complaints of blanketing interference that are received with-in a one-year period.

Figure E-2 is a sketch showing important elevations for the antenna and its supporting structure at the proposed construction site.

The main studio for the station will be located in the ELDON area, at a site yet to be determined.

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ENGINEERING EXHIBIT E-6
APPLICATION FOR FM CONSTRUCTION PERMIT
SAMPLE BROADCASTING COMPANY
ELDON, IOWA

CHANNEL 282 25 KW 100 METERS

ENVIRONMENTAL IMPACT STATEMENT

The instant proposal is categorically excluded from environmental processing since none of the conditions of Section 1.1306(b)(2) and (3) would be involved for the following reasons:

1) The site proposed is not in or near any location referenced in Section 1.1306(b)(1) as being of environmental interest.

2) The provisions of Section 1.1306(b)(2) relating to the use of high intensity strobe lighting does not apply since the antenna height proposed with this application does not require this form of lighting to be utilized.

3) Compliance to Section 1.1306(b)(3) regarding human exposure to RF radiation was examined for a single source. A search was made about the proposed site coordinates to locate any additional sources of RF radiation. No other sources were found.

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ENGINEERING EXHIBIT E-6
APPLICATION FOR FM CONSTRUCTION PERMIT
SAMPLE BROADCASTING COMPANY
ELDON, IOWA

CHANNEL 282 25 KW 100 METERS

ENVIRONMENTAL CONSIDERATIONS CONTINUED

The power density at the base of the tower was calculated using the following formula from OST Bulletin Number 65, October, 1985:

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where: S = power density in milliwatts per square centimeter
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ERP = 50,000 watts
R = 8,100 cm.

The ANSI limit is 1.0 mW/cm^2. It is evident that any person at the base of the tower would be well within the ANSI exposure limit. Manipulating the above referenced formula, the minimum distance from the antenna required to achieve ANSI guidelines would be 41 meters.

Access to RF circuitry will be restricted. Signs will be posted warning of the potential danger. When persons require access to the tower for maintenance purposes, the transmitter power will be reduced or completely eliminated to comply with ANSI guidelines. Hence, the conditions of Section 1.1306(b)(3) would not be involved.

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ENGINEERING EXHIBIT E-8
APPLICATION FOR FM CONSTRUCTION PERMIT
SAMPLE BROADCASTING COMPANY
ELDON, IOWA

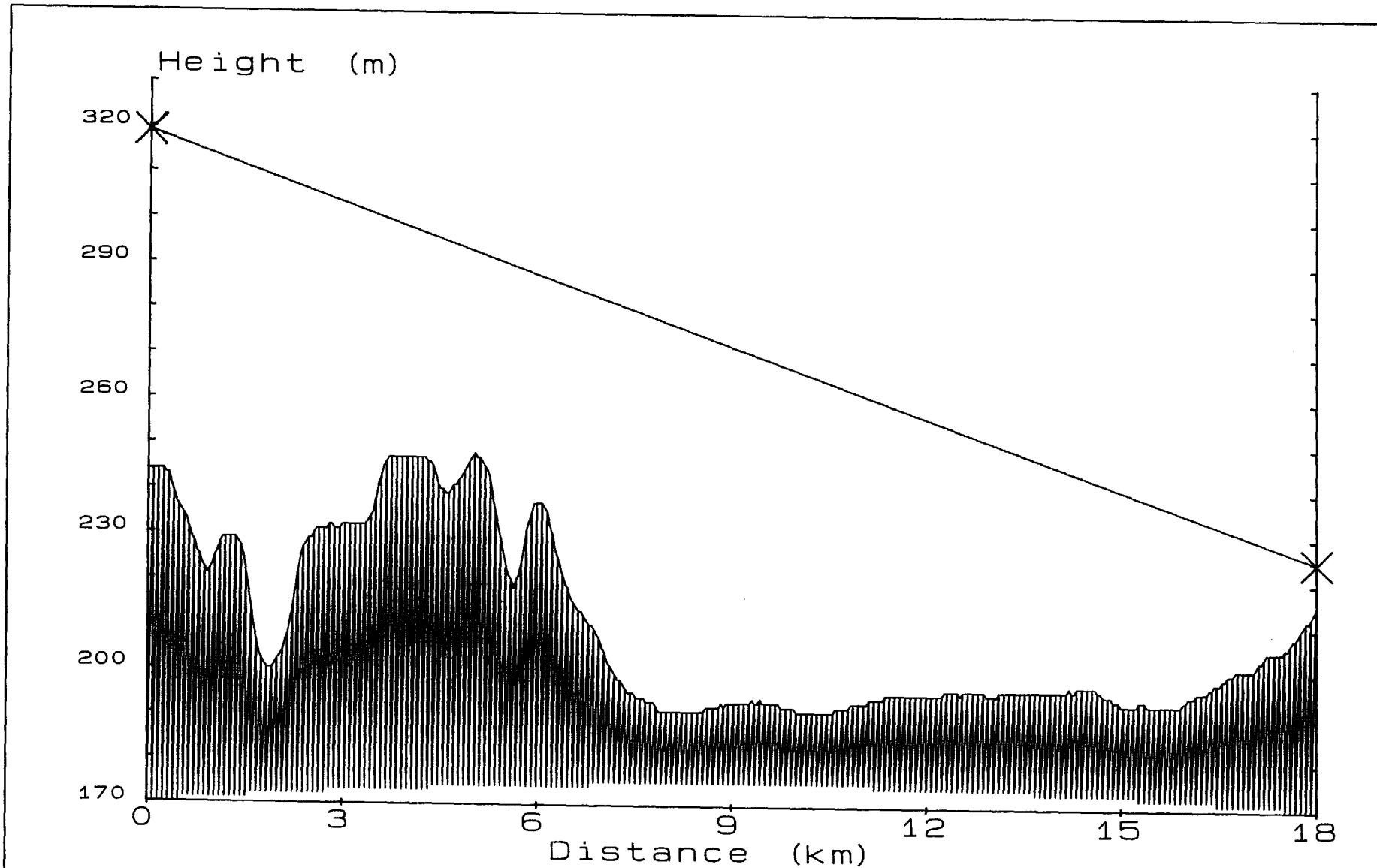
CHANNEL 282 25 KW 100 METERS

CHANNEL SPACING STUDY

FM Channel 282-C3

LATITUDE: 40° 48′ 34"
LONGITUDE: 92° 5′ 18"

CHNL	Call	City	Class	Calculated Km.	Required Km.	Delta km.	Bearing °
228	NO CONFLICT						
229	NO CONFLICT						
279	NO CONFLICT						
280	NO CONFLICT						
281		FAIA Ames	C	194.49	176	18.49	309.33
281	KEZT	FMIA Ames	C	194.49	176	18.49	309.33
282		FAMO Vandalia	A	173.87	142	31.87	162.29
283	KTOF	FMIA Cedar Rapids	C1	144.96	144	0.96	12.90
283		FAIA Cedar Rapids	C1	144.96	144	0.96	12.90
284	NO CONFLICT						
285		FAIA Oskaloosa	C2	73.61	56	17.61	320.78
285	KBOEFM	FMIA Oskaloosa	A	73.61	42	31.61	320.78
285	KBOEFM	FMIA Oskaloosa	C2	73.61	56	17.61	320.78



Path Study for Eldon, IA

Engineering Exhibit E-7

Owl Engineering, Inc.
1306 W. County Rd. F
Saint Paul, Minnesota
(612) 631-1338

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ENGINEERING EXHIBIT FOR APPLICATION FOR FM CONSTRUCTION PERMIT SAMPLE BROADCASTING COMPANY ELDON, IOWA

CHANNEL 282 25 KW 100 METERS

AFFIDAVIT

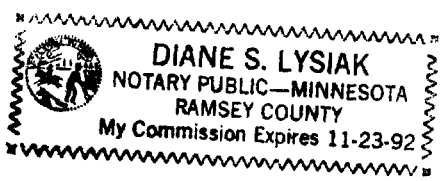
RAMSEY COUNTY)
) ss:
STATE OF MINNESOTA)

Garrett G. Lysiak, being first duly sworn, says that he is president of Owl Engineering, Inc., consulting communications engineers with offices in Arden Hills, Minnesota: that his qualifications as an expert in communications engineering are a matter of record with the Federal Communications Commission: that the foregoing exhibit was prepared by him and under his direction; and that the statements contained therein are true of his own personal knowledge except those stated to information and belief and, as to those statements, verily believes them to be true and correct.

Garrett G. Lysiak

Garrett G. Lysiak, P.E.

Subscribed and sworn to before me this date September 19, 1991.



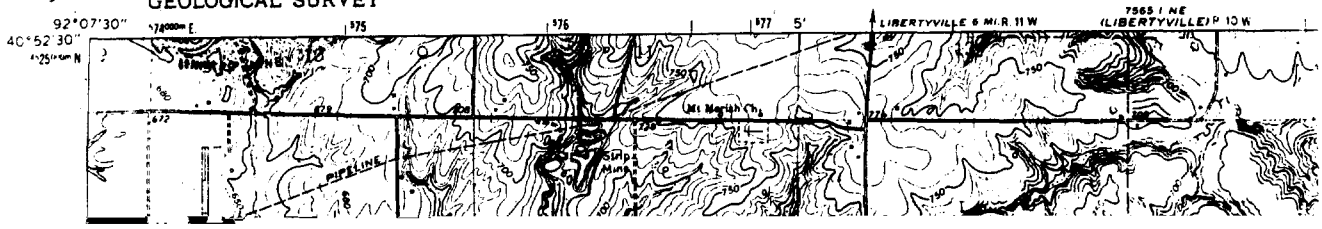
Diane S. Lysiak

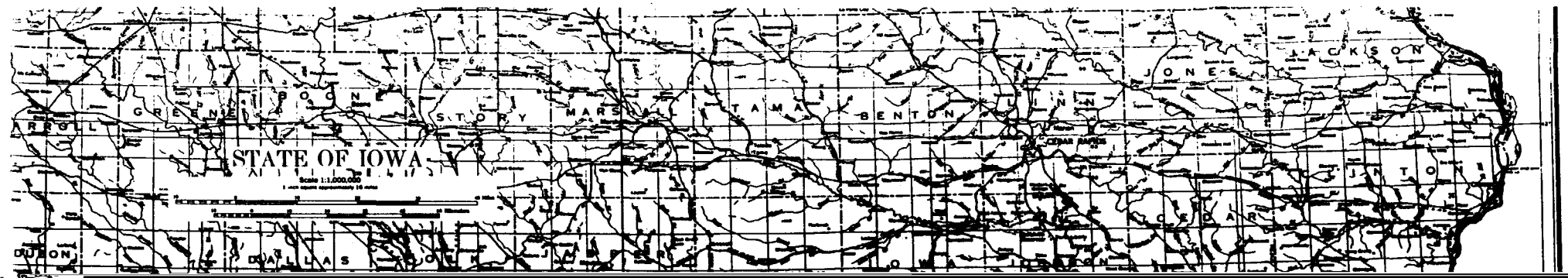
Diane S. Lysiak
Notary Public

My commission expires November 23, 1992

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

DOUDS QUADRANGLE
IOWA—VAN BUREN CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)




STATE OF IOWA
JACKSON
JONES
CLINTON
BENTON
TAMA
MARSHALL
STORY
POLK
GREENE
CARROLL
DALLAS